

REV : 01  
JULY 21, 1998

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**AC SERIES**

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**SERVICE MANUAL**

**C A S CORPORATION**

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# CHAPTER-I

## THE GENERAL INTRODUCTIONS

### A. PREFACE

Thank you for the purchasing of CAS AC Series.  
These series have been designed with CAS reliability, under rigid quality control and with outstanding performance. Your departments can enjoy with these high quality reliable CAS products.  
We believe that your needs will be satisfied and you will have reliability with in variable weight.  
This manual will help you with proper operations and care of the AC series.  
Please keep it handy for the future references.

### B. THE PRECAUTIONS

1. Make sure that you plug your scale into the proper power outlet.
2. Place the scale on a flat and stable surface.
3. Plug into a power outlet 30 minutes before operations.
4. Keep the scale away from strong EMI noises may cause incorrect weight readings.
5. This scale must be installed in a dry and liquid free environment.
6. Do not subject the scale to sudden temperature changes.
7. Do not subject the platter to sudden shocks.
8. If the scale is not properly level, please adjust the 4 legs at the bottom of the scale (turn legs clockwise or counterclockwise) so as to center the bubble of the levelling gauge inside the indicated circle.

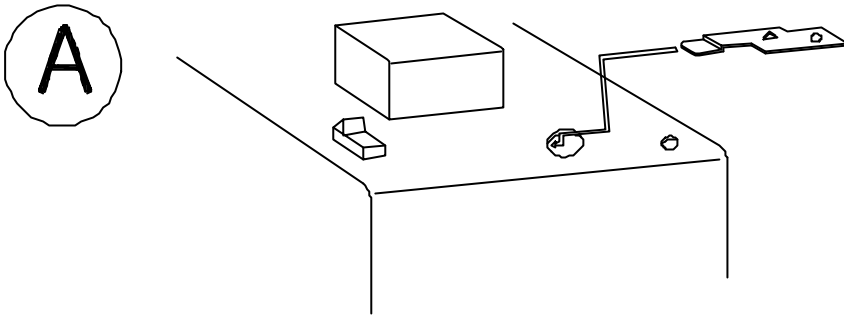
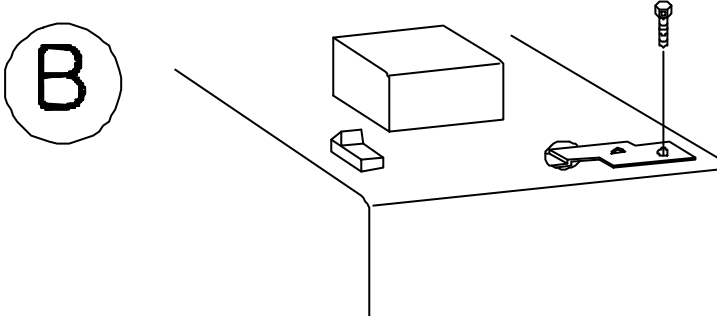
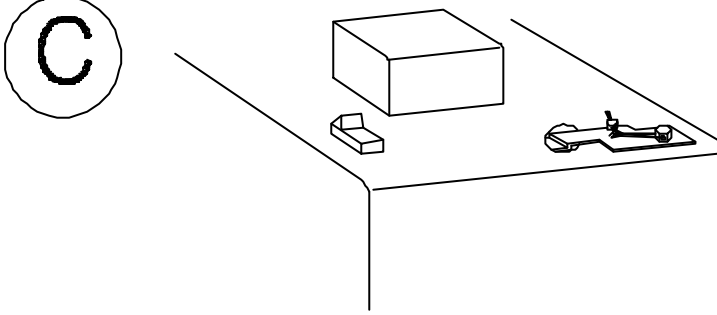
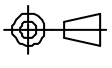



### C. THE SPECIFICATIONS

MODEL	AC (25AC/50AC/100AC)
INTERNAL RESOLUTION	1/25,000
DISPLAY RESOLUTION	1/5,000
FUNCTION	COUNTING
DISPLAY DIGIT	5/5/5
MEASUREMENT TYPE	LOAD CELL TYPE
POWER SUPPLY	AC 220V/60Hz
POWER CONSUMPTION	APPROX. 10W
TEMPERATURE	-5℃ ~ +35℃

Notice : Specifications are subject to change for improvement without notice.

# C. SEALING METHOD

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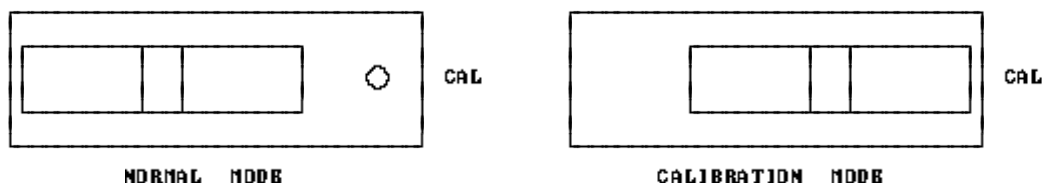
REV	SYM	CONTENTS				DRAWN	CHECKED	APPROVED
A								
B								
C								
D								
NO	PARTS NAME	SPECIFICATION			Q'TY	REMARK		
TOLERANCES UNLESS OTHERWISE SPECIFIED		NAME OR TITLE			<b>CAS</b> CAS CORPORATION #19 KANAP-RI KWANGJEOK-MYON YANGJU-KUN KYUNGKI-DO, KOREA			
ANGULAR $\pm$ N/A		SEALING METHOD						
E	DECIMAL $\pm$ N/A	FIRST USED IN ASSEMBLY			COUNTING SCALE			
		Q'TY/SET	FIRST MADE FOR			END FINISH		
		1/1	AC			N/A		
		CONTRACT OR CUSTOMER NO			DO NOT SCALE DRAWING		DIMENSIONS ARE IN MM. INCH	
		WORLD WIDE						
DRAWN		CHECKED	CHECKED	APPROVED	SCALE	DRAWING.PART NO.		REV
					F/S	3005-AC0-0000		00
. .19		. .19	. .19	. .19				

# CHAPTER-II

## THE CALIBRATIONS

### A. THE GENERAL SPAN CALIBRATION

#### A. 1 SET TO THE CALIBRATION MODE



1. Remove the CAL switch cover and set the calibration switch to the right as shown in above.
2. Turn on the power switch. "CAL" will be flickered three times and then be blanked.

#### A. 2 THE SPAN CALIBRATION

Press C and 4 key, then "C set" would be displayed in the weight display as below. After this, begin entering refer to the TABLE 1.

XX	-- condition factor
C Set	
1	-- step number

Press C key to go to next step.

When you finish these steps, the display shows "End" message.

< TABLE 1. >

C + 4 key	25AC	50AC	100AC
STEP 1	00	00	00
STEP 2	02	04	08
STEP 3	00	00	00
STEP 4	00	00	00

1. Empty the tray then press C and 3 key.  
"ULdAd" is displayed in the weight display and if "C" key is pressed, "Stable" will be displayed first and then perform count down itself 8 through 0.
2. Then "LdAd" will be displayed.  
Now, load full weight and press C key again. After counting down, "End" message will be displayed and it will be off.

### **A. 3 TO CHECK THE INITIAL ZERO POINT AND SPAN VALUE**

1. Place the tray and read the zero point by pressing **C** and **5** key.
2. It is normal when the value is within 0 through 50,000 on the count display.
3. Make the weight display to "0" by pressing **ZERO** key and load full weight.
4. It is normal when the reading is higher than 50,000 but the value exceed the "100,000", the display shows 5 digits. For example, 110,000 is displayed as 10,000.

### **A. 4 TO CONFIRM THE SPAN AND TO DO FINE TRIMMING**

1. When the fine span trimming is needed, remove the weight from the tray and press **C** and **1** key and then load full weight.  
When you load full weight, the value should be 25,000.  
If you have to increase the value, press **7** and **0** key, and if you have to decrease the value, press the **7** key two times.

### **A. 5 RETURN TO THE NORMAL MODE**

1. Empty the tray and press **C** and **0** key.  
Now, this scale return to normal mode.
2. Return the CAL switch to normal position(initial position.)

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## CHAPTER-III

### THE PART REPLACEMENTS

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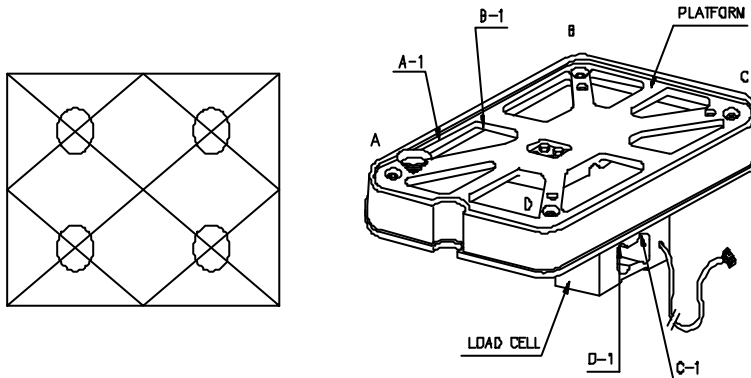
#### A. REPLACEMENT OF THE LOAD CELL

##### A. 1 REPLACEMENT OF THE LOAD CELL

- A.1.1 Remove the platter and disassemble the upper case.
- A.1.2 Remove the platform on the load cell with a hex wrench.
- A.1.3 Disconnect a connector wire of the load cell from the PCB.
- A.1.4 Remove the load cell from the body.
- A.1.5 Replace the load cell by a new one.
- A.1.6 Connect a connector wire of the load cell to the PCB.
- A.1.7 Place the platform on the load cell.

##### A. 2 CORRECTION OF THE ECCENTRICITY

- A.2.1 Set a calibration mode.
- A.2.2 Press the "C" and "5" key.
- A.2.3 Reset the weight display by pressing "ZERO" key, if it is needed.
- A.2.4 Place 1/3 the scale capacity on the platform by turns as shown in belows.



- A.2.5 Compare four values which are output from load cell.  
Maximum value is regarded as a base and grind the point in load cell where shows less than other value.  
And check each point is within  $\pm 1$  count tolerance with 1/3 of full load.

##### A. 3 THE SPAN CALIBRATION

Refer to the Chapter 11.

## **B. REPLACEMENT OF THE ANALOG MODULE**

### **B. 1 REPLACEMENT OF THE ANALOG MODULE**

**B.1.1** Remove the platter and the upper case.

**B.1.2** Take a main circuit board out on the body.

**B.1.3** Desolder the analog module pins(11 pins) on main board.

**B.1.4** Replace the analog module (CAM 01) by a new one.

**B.1.5** Install the main board on the body.

**B.1.6** Place the upper case and the platter.

**NOTE :** After replacement of the analog module, you must do the calibration again.

## **C. REPLACEMENT OF THE DIGITAL MODULE**

### **C. 1 REPLACEMENT OF THE DIGITAL MODULE**

**C.1.1** Remove the platter and the upper case.

**C.1.2** Take a main circuit board out on the body.

**C.1.3** Desolder the digital module pins(48 pins) on main board.

**C.1.4** Replace the digital module by a new one.

**C.1.5** Install the main board on the body.

**C.1.6** Place the upper case and the platter.

**NOTE :** After replacement of the digital module, you must do the calibration again.

## **D. REPLACEMENT OF THE KEYBOARD**

### **D. 1 REPLACEMENT OF THE KEYBOARD**

**D.1.1** Remove the upper case.

**D.1.2** Disconnect a tail of the keyboard.

**D.1.3** Replace the keyboard by a new one.

**D.1.4** Connect a tail of the key board into connectors **CMS** on the PCB.

**NOTE :** After replacement of the keyboard, you must do the calibration again.

### **D. 2 TEST THE KEY BOARD**

**D.2.1** Set a calibration mode.

**D.2.2** Press the "C" and "2" key.

**D.2.3** Press each key.

**D.2.4** The count display will show the matrix key code of the key.

(Refer to TABLE 2)

**<TABLE 2>**

KEY	MATRIX KEY CODE
.	f
TARE	b
ZERO	c
NUM	d
HGT	e
ON/OFF	1b

### **D. 3 RETURN TO THE NORMAL MODE**

1) Set the CAL switch to the normal mode.

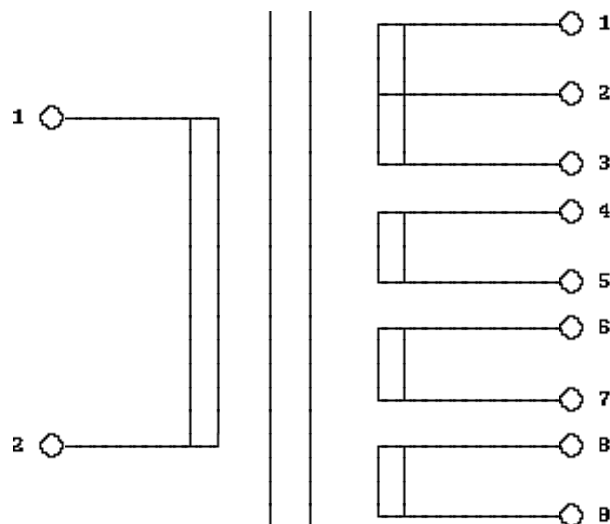
2) Press "C" and "0" key.



# CHAPTER-IV

## THE TRANSFORMER

### A. THE TRANSFORMER

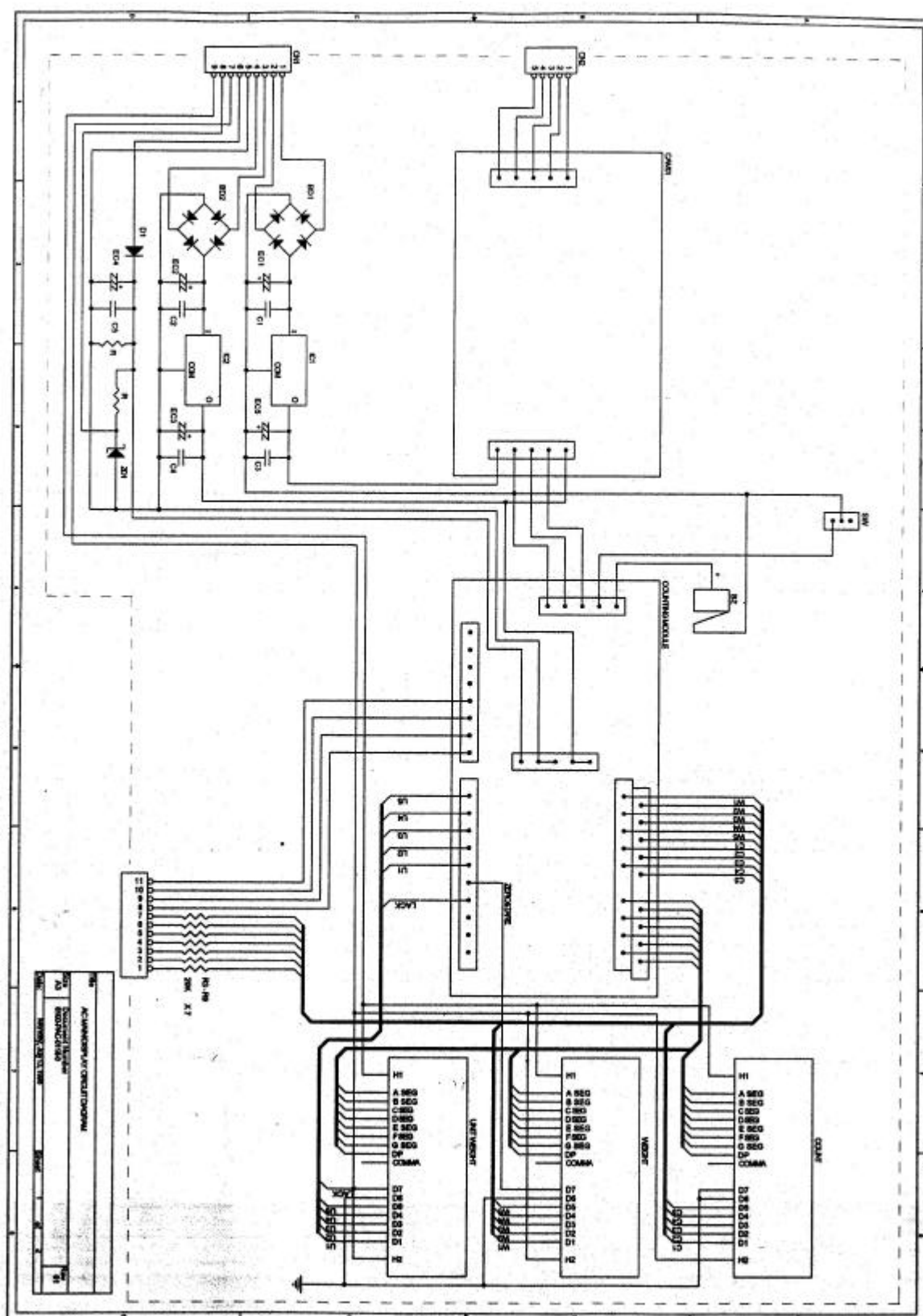


QUALITY OF LEAD WIRE AND LENGTH						
	NO.	COLOR	WIRE LENGTH	TREATMENT (mm)	mA	V
INPUT	1	WHITE	150 mm	$\pm 10$		0
	2	RED	"	"		220
OUTPUT	1	GRAY	300 mm	"	700	1.65
	2	PURPLE	"	"	0	0
	3	BLUE	"	"	700	1.65
	4	BROWN	"	"	50	20
	5	BLACK	"	"		
	6	YELLOW	"	"	100	16.5
	7	GREEN	"	"		
	8	ORANGE	"	"	100	8.8
	9	RED	"	"		

∴ CORE : 48 X 25 mm

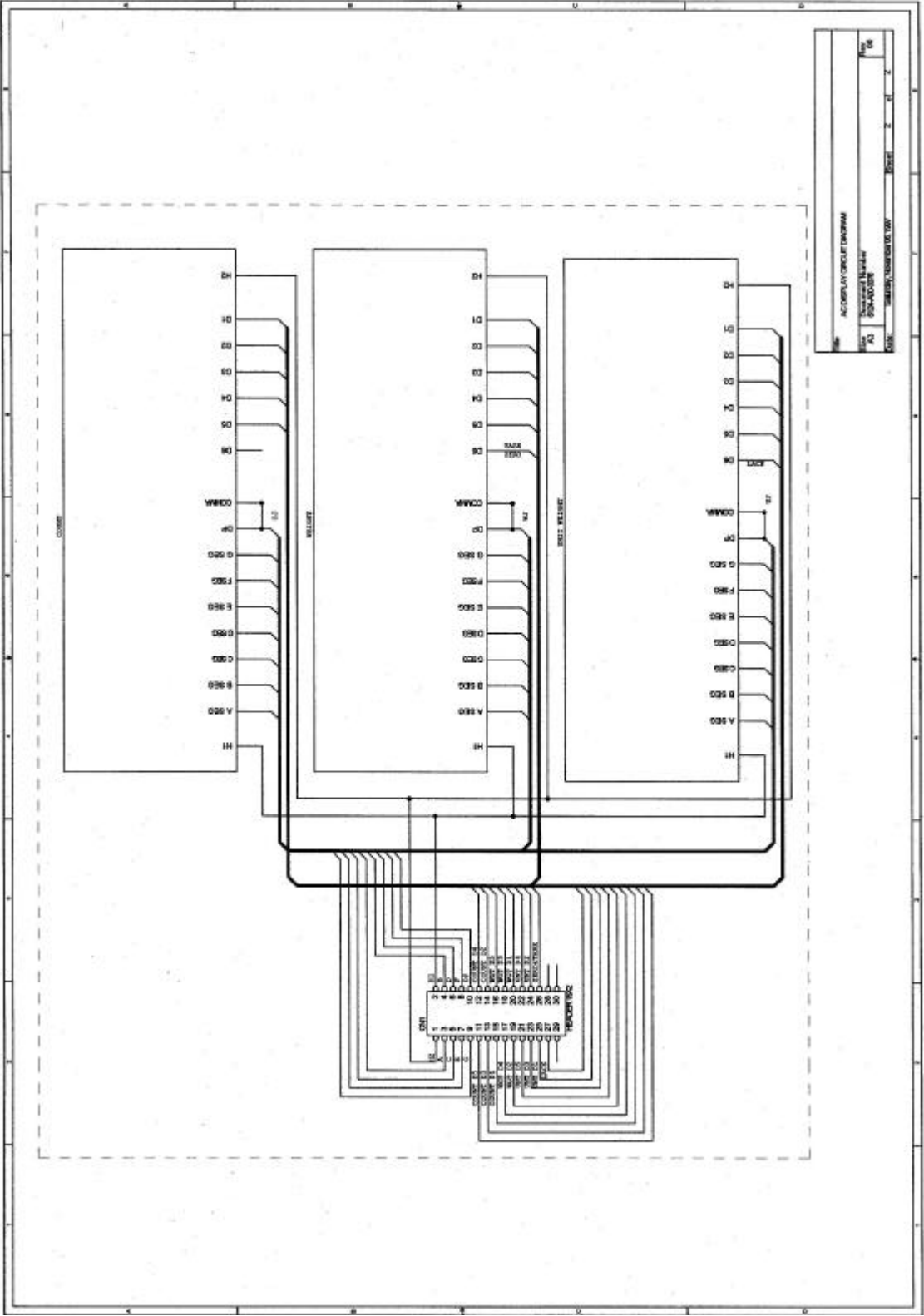
∴ 50Hz / 60Hz





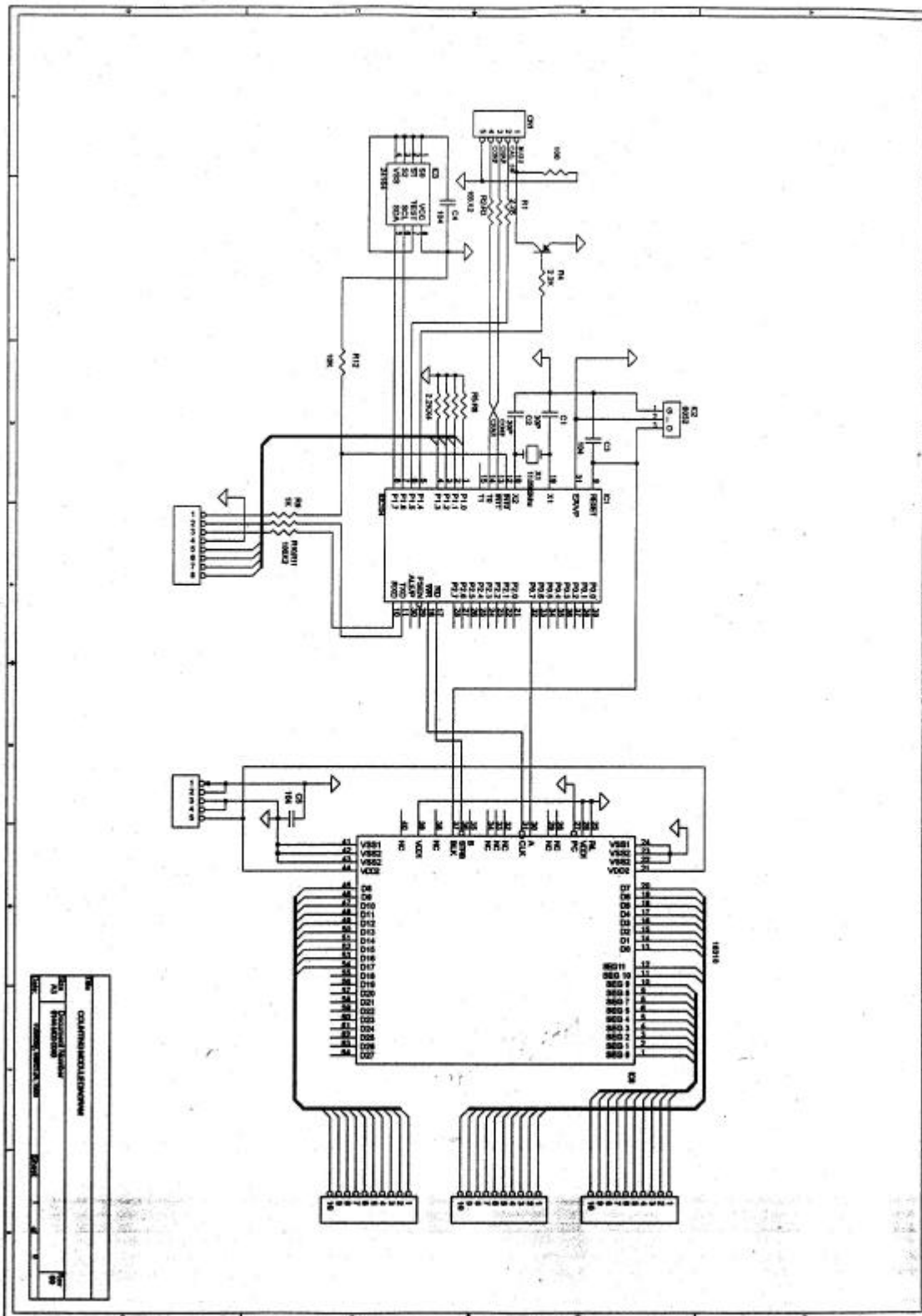
B. DISPLAY CIRCUIT DIAGRAM

REV : 00



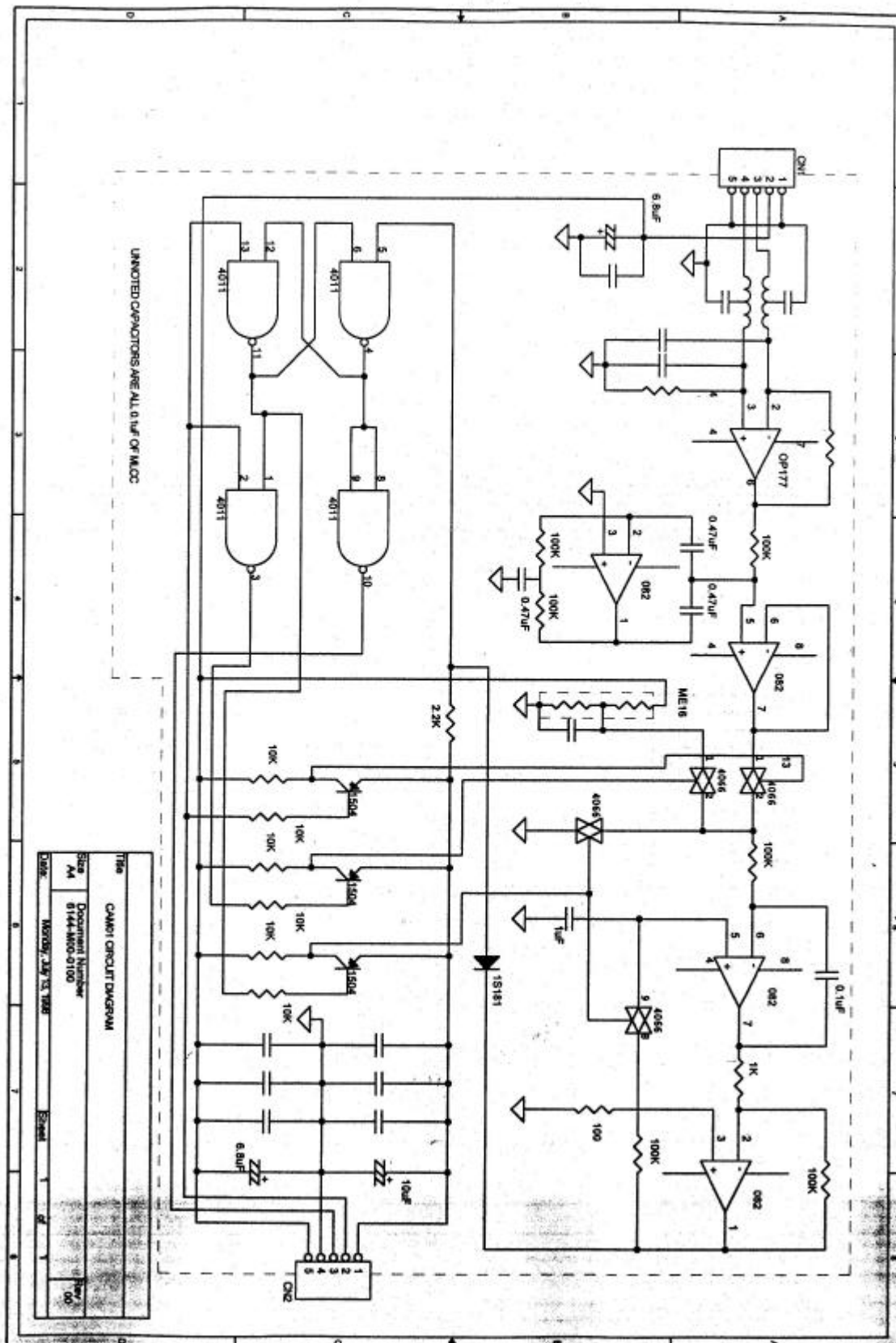
## C. DIGITAL MODULE DIAGRAM

REV : 00



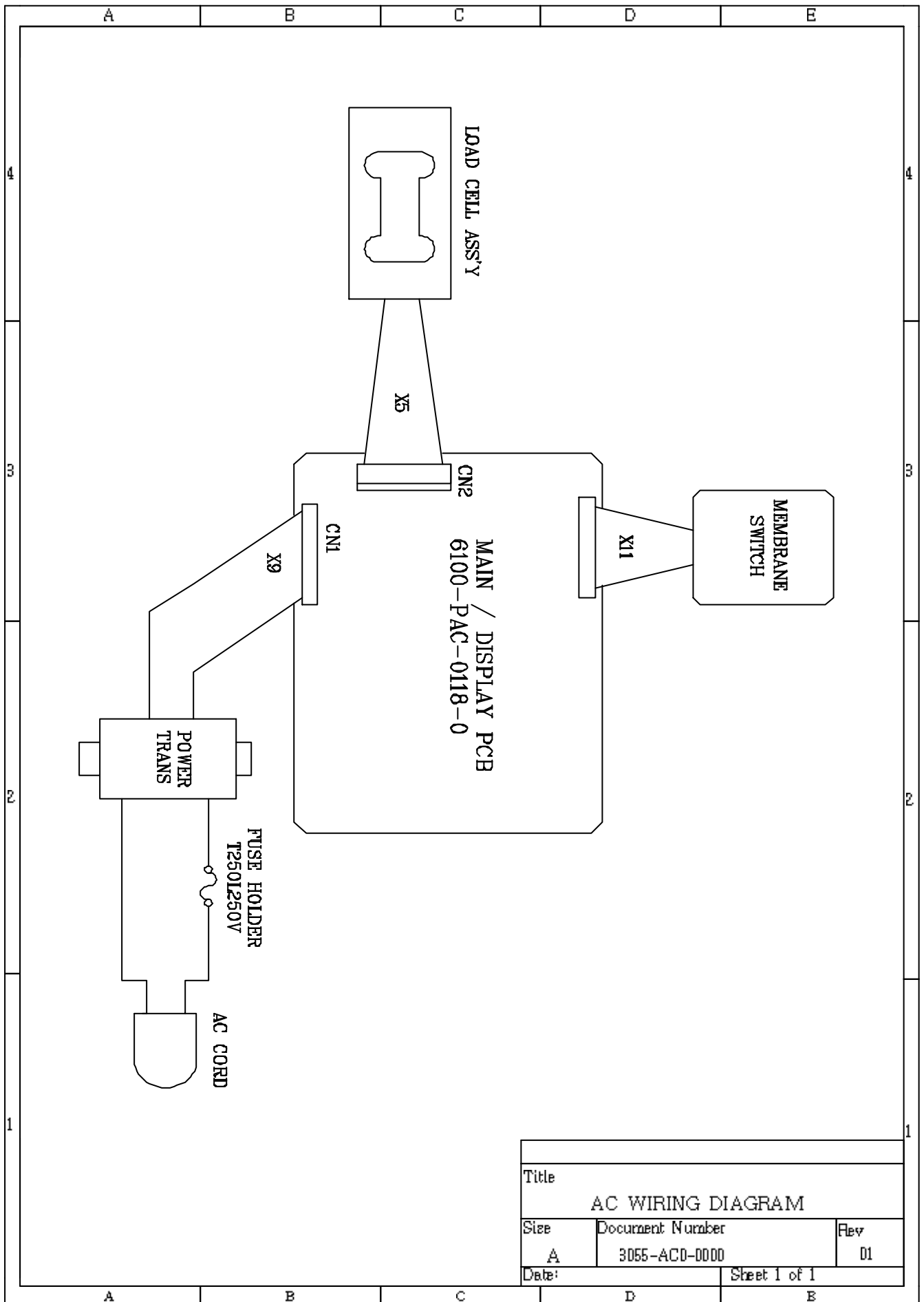
## D. ANALOG MODULE DIAGRAM

REV : 00



## E. WIRING DIAGRAM

REV : 01

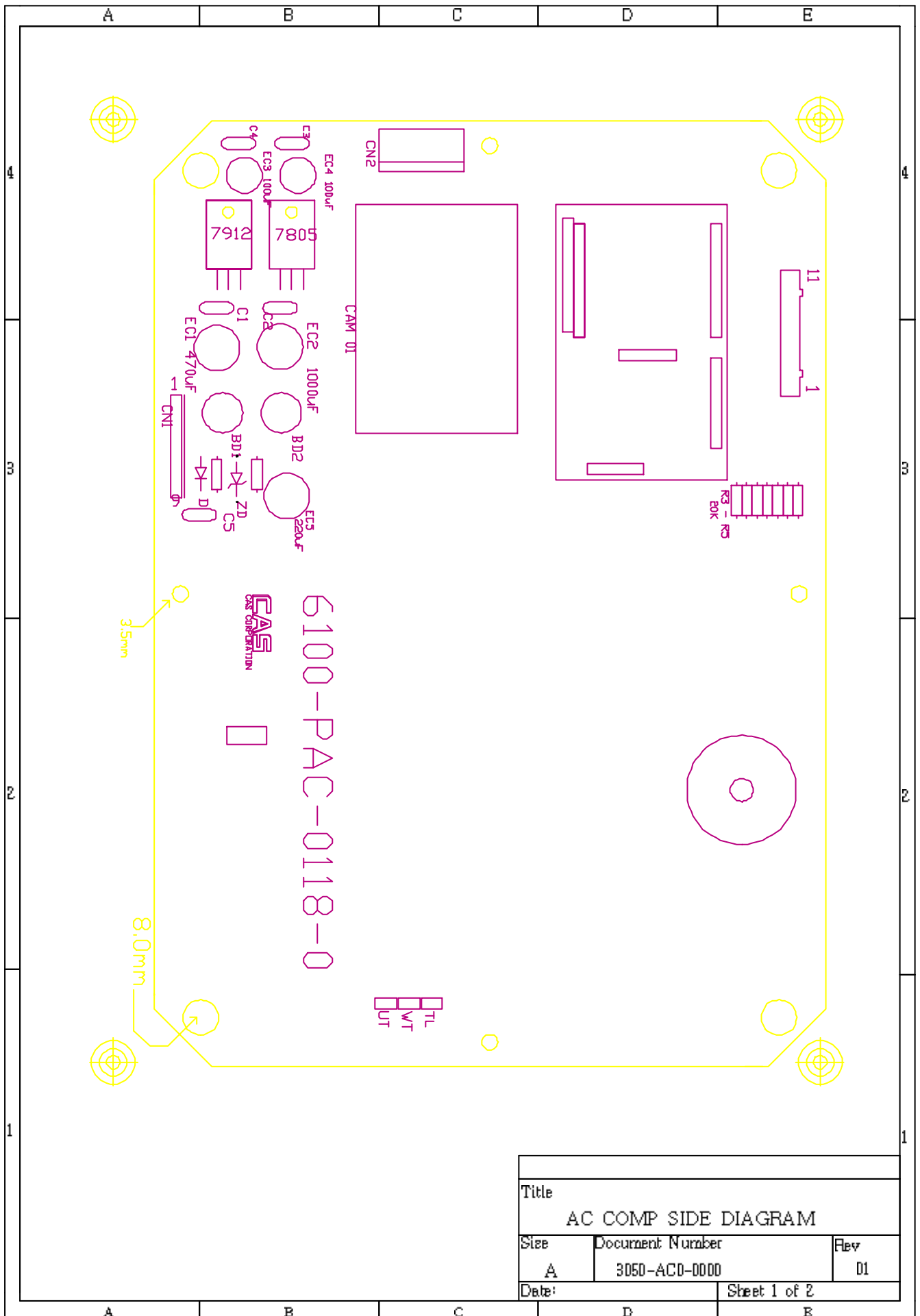


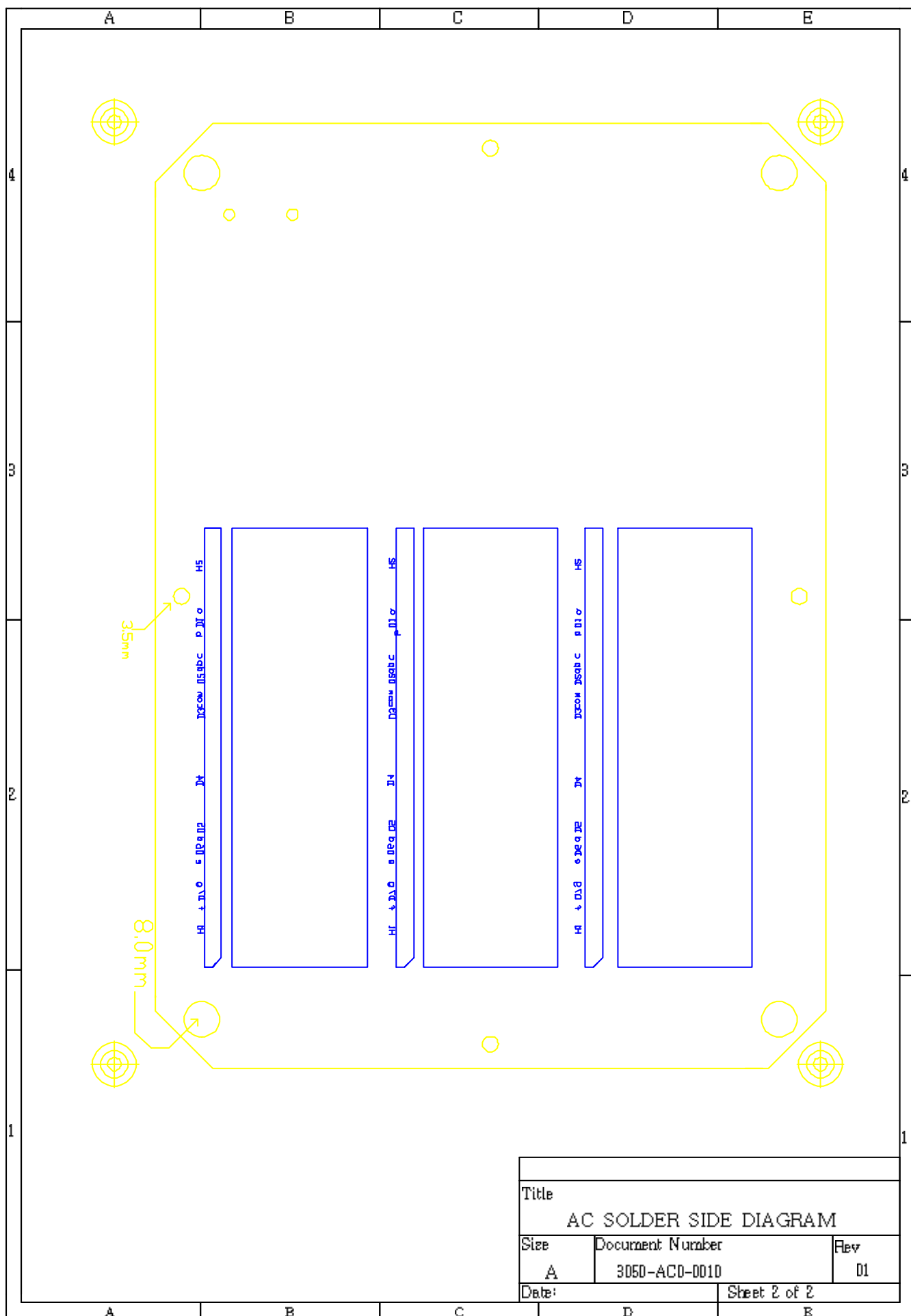
Title		
AC WIRING DIAGRAM		
Size	Document Number	Rev
A	3055-ACD-0000	01
Date:	Sheet 1 of 1	



## F. PARTS LOCATION

REV : 01





## CHAPTER-VI

### THE OTHERS

#### A. FOR THE SERIAL INTERFACES

##### THE PROTOCOLS FOR THE CAS STANDARD SERIAL INTERFACE

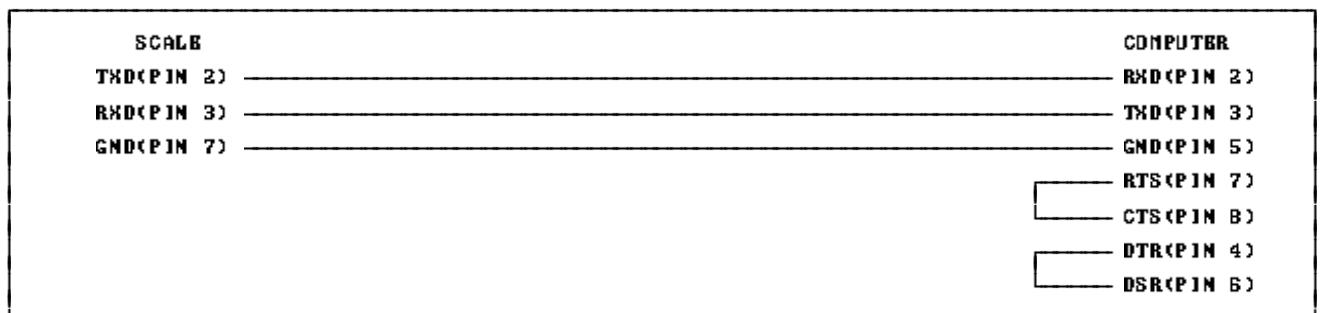
THIS IS HALF-DUPLEX COMMUNICATION RS-232C.

##### A. 1 THE COMMUNICATION AGREEMENTS

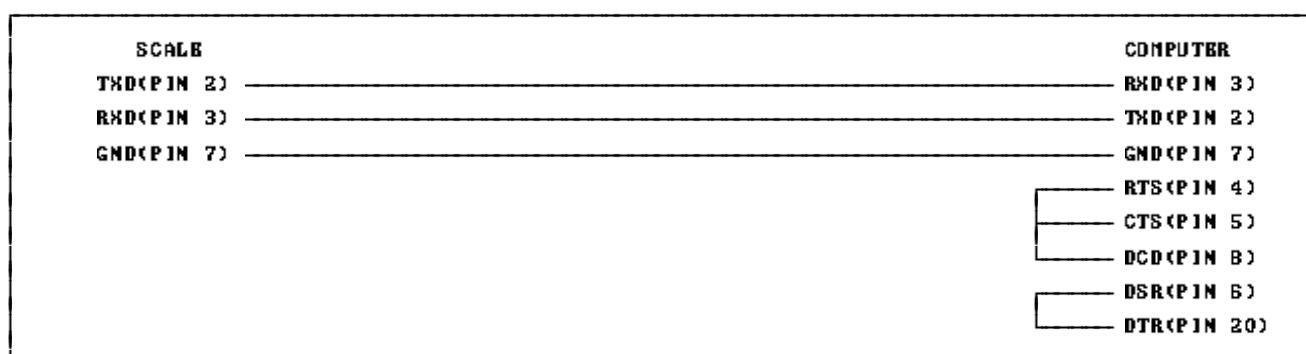
1. BAUD RATE -> 9,600 BPS
2. DATA BIT -> 8 BIT
3. STOP BIT -> 1 BIT
4. PARITY BIT -> NO
5. COMMUNICATION LEVEL -> RS-232C LEVEL
6. DATA FORMAT -> ASCII
7. THE COMMAND DEFINITIONS
  - S-1. "ENQ" -> 05H
  - S-2. "ACK" -> 06H
  - S-3. "NAK" -> 15H
  - S-4. "SOH" -> 01H
  - S-5. "STX" -> 02H
  - S-6. "ETX" -> 03H
  - S-7. "EDT" -> 04H
  - S-8. "DC1" -> 11H
  - S-9. "DC2" -> 12H
  - S-10. "DC3" -> 13H
  - S-11. "DC4" -> 14H

##### A. 2 THE WIRE CONNECTIONS

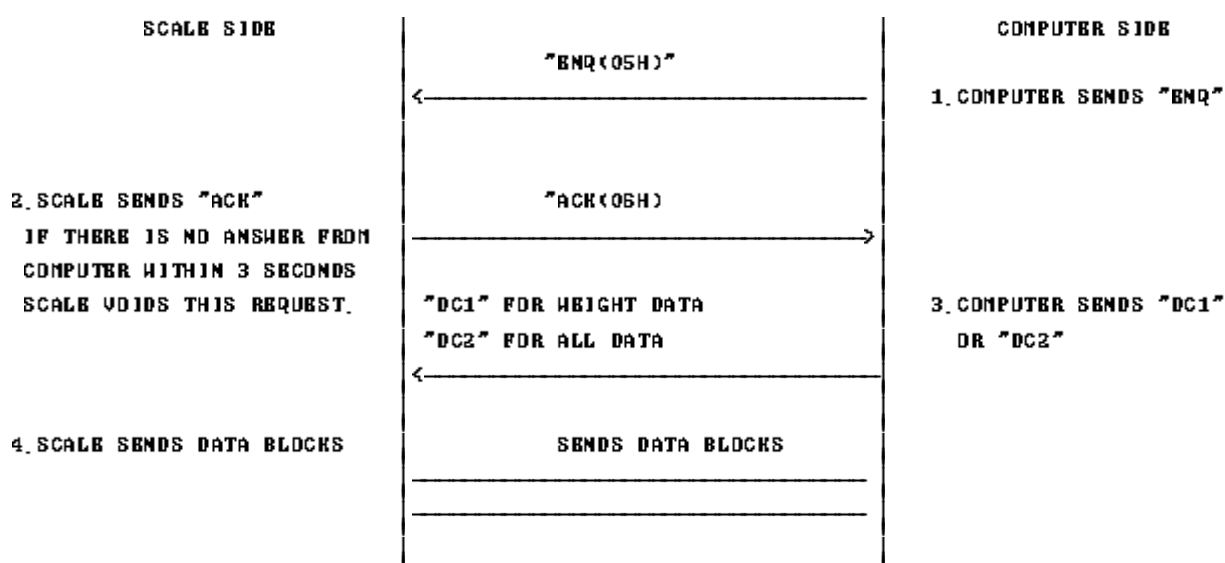
###### A.2.1 THE WIRE CONNECTIONS OF THE D-SUB 9 PIN CONNECTOR OF A COMPUTER SIDE



## A.2.2 THE WIRE CONNECTIONS OF THE D-SUB 25 PIN CONNECTOR OF A COMPUTER SIDE

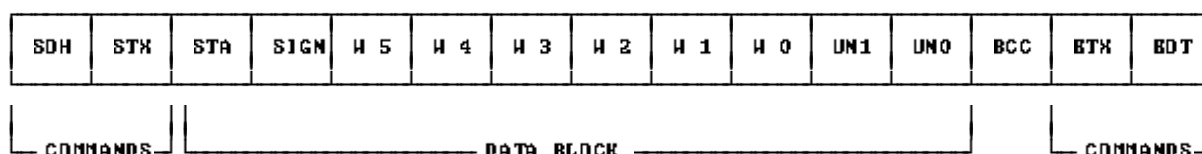


## A.3 THE PROTOCOL



## A.4. THE DATA TRAINS

### 1. THE DATA TRAINS FOR THE "DC1"



### REMARKS ;

- . STA -> A WEIGH STATUS OF THE SCALE  
SCALE IS STABLE -> "S", UNSTABLE -> "U"
- . SIGN -> SIGN OF THE HEIGHT DATA  
ZERO AND POSITIVE HEIGHT -> " ", NEGATIVE HEIGHT -> "- ",  
OVER LOAD -> "F"
- . H5 THROUGH H0 -> HEIGHT DATA  
BUT ALL "F"s WHEN THE SCALE IS PUT ON OVER LOAD.
- . UN1 THROUGH UN0 -> UNIT OF HEIGHT(kg OR lb)
- . BCC -> BLOCK CHECK CHARACTER  
BCC IS CREATED BY EXCLUSIVE-OR OF A DATA BLOCK

## 2. THE DATA TRAINS FOR THE "DC2"

SDH	STX	P 7	P 6	P 5	P 4	P 3	P 2	P 1	P 0	ETX	BCC
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

STX	STA	SIGN	H 5	H 4	H 3	H 2	H 1	H 0	UN1	UN0	BCC	ETX
-----	-----	------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

STX	P 7	P 6	P 5	P 4	P 3	P 2	P 1	P 0	ETX	BCC	SDH
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

### REMARKS :

.STA -> A WEIGH STATUS OF THE SCALE

SACLE IS STABLE -> "S" , UNSTABLE -> "U"

.SIGN ->SIGNS OF THE HEIGHT DATA

ZERO AND POSITIVE HEIGHT -> " " , NEGATIVE HEIGHT -> "-" ,

OVER LOAD -> "F"

.P7 THROUGH P0 -> PRICE DATA

IF THE OVER FLOW IS HAPPEN IN PRICE, ALL "F"s WILL FILL TO DATA BLOCK OF THE PRICE.

.H5 THROUGH H0 -> HEIGHT DATA

BUT ALL "F"s WHEN THE SCALE IS PUT ON OVER LOAD.

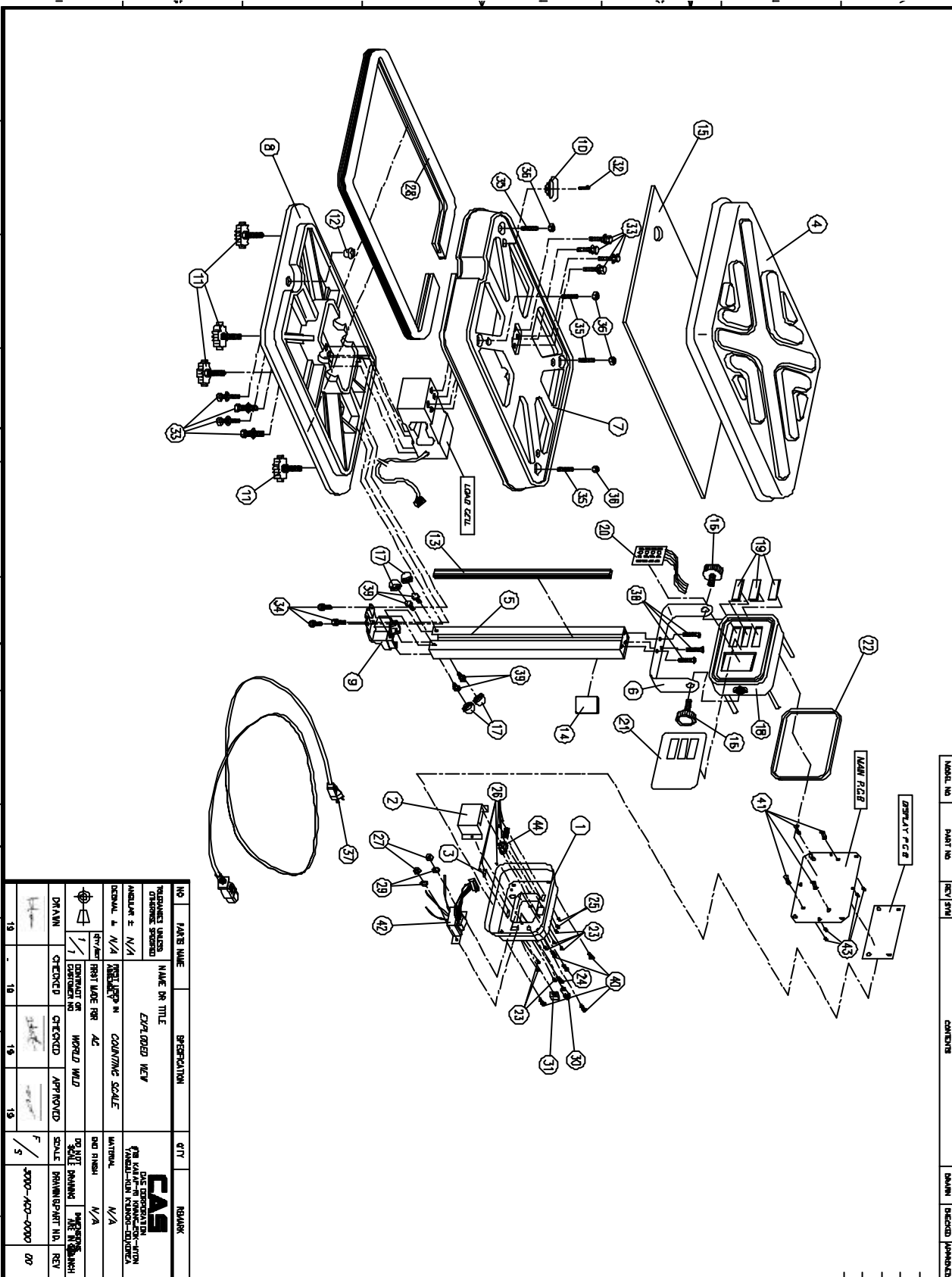
.UN1 THROUGH UN0 -> UNIT OF HEIGHT(kg OR lb)

.BCC -> BLOCK CHECK CHARACTER

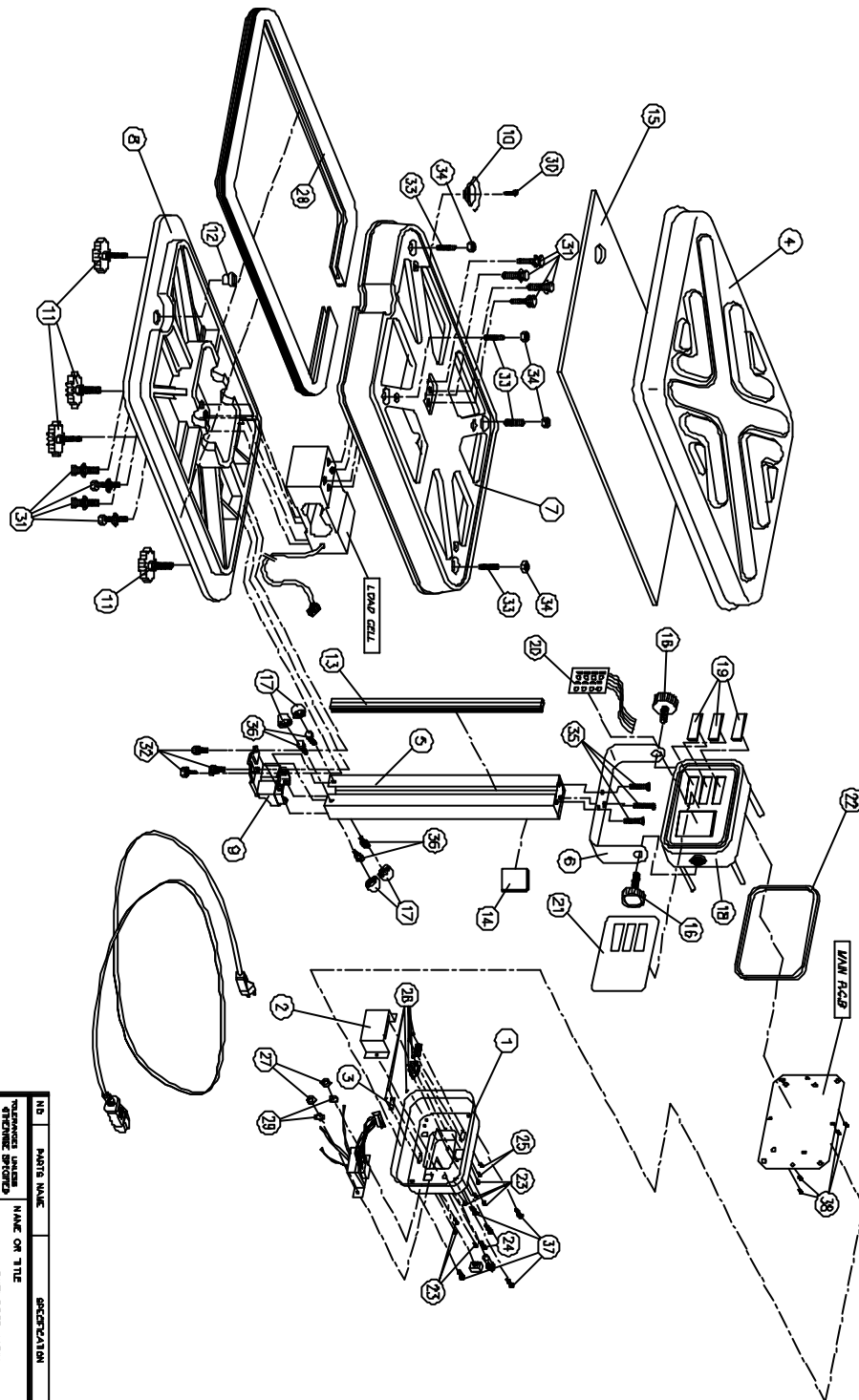
BCC IS CREATED BY EXCLUSIVE-OR OF EACH DATA BLOCKS.

B. EXPLODED VIEW (MECHANICAL PART)

REV : 00



NO	PART NAME	SPECIFICATION	QTY	REMARK
1	BASE PLATE	1/4" ALUMINUM PLATE	1	
2	FRONT PANEL	1/4" ALUMINUM PLATE	1	
3	REAR PANEL	1/4" ALUMINUM PLATE	1	
4	TOP COVER	1/4" ALUMINUM PLATE	1	
5	BOTTOM COVER	1/4" ALUMINUM PLATE	1	
6	MAIN PCB	1/4" ALUMINUM PLATE	1	
7	DISPLAY PCB	1/4" ALUMINUM PLATE	1	
8	LONG CABLE	1/4" ALUMINUM PLATE	1	
9	FRONT PANEL	1/4" ALUMINUM PLATE	1	
10	REAR PANEL	1/4" ALUMINUM PLATE	1	
11	TOP COVER	1/4" ALUMINUM PLATE	1	
12	BOTTOM COVER	1/4" ALUMINUM PLATE	1	
13	MAIN PCB	1/4" ALUMINUM PLATE	1	
14	DISPLAY PCB	1/4" ALUMINUM PLATE	1	
15	LONG CABLE	1/4" ALUMINUM PLATE	1	
16	FRONT PANEL	1/4" ALUMINUM PLATE	1	
17	REAR PANEL	1/4" ALUMINUM PLATE	1	
18	TOP COVER	1/4" ALUMINUM PLATE	1	
19	BOTTOM COVER	1/4" ALUMINUM PLATE	1	
20	MAIN PCB	1/4" ALUMINUM PLATE	1	
21	DISPLAY PCB	1/4" ALUMINUM PLATE	1	
22	LONG CABLE	1/4" ALUMINUM PLATE	1	
23	FRONT PANEL	1/4" ALUMINUM PLATE	1	
24	REAR PANEL	1/4" ALUMINUM PLATE	1	
25	TOP COVER	1/4" ALUMINUM PLATE	1	
26	BOTTOM COVER	1/4" ALUMINUM PLATE	1	
27	MAIN PCB	1/4" ALUMINUM PLATE	1	
28	DISPLAY PCB	1/4" ALUMINUM PLATE	1	
29	LONG CABLE	1/4" ALUMINUM PLATE	1	
30	FRONT PANEL	1/4" ALUMINUM PLATE	1	
31	REAR PANEL	1/4" ALUMINUM PLATE	1	
32	TOP COVER	1/4" ALUMINUM PLATE	1	
33	BOTTOM COVER	1/4" ALUMINUM PLATE	1	
34	MAIN PCB	1/4" ALUMINUM PLATE	1	
35	DISPLAY PCB	1/4" ALUMINUM PLATE	1	
36	LONG CABLE	1/4" ALUMINUM PLATE	1	
37	FRONT PANEL	1/4" ALUMINUM PLATE	1	
38	REAR PANEL	1/4" ALUMINUM PLATE	1	
39	TOP COVER	1/4" ALUMINUM PLATE	1	
40	BOTTOM COVER	1/4" ALUMINUM PLATE	1	
41	MAIN PCB	1/4" ALUMINUM PLATE	1	
42	DISPLAY PCB	1/4" ALUMINUM PLATE	1	
43	LONG CABLE	1/4" ALUMINUM PLATE	1	
44	FRONT PANEL	1/4" ALUMINUM PLATE	1	
45	REAR PANEL	1/4" ALUMINUM PLATE	1	
46	TOP COVER	1/4" ALUMINUM PLATE	1	
47	BOTTOM COVER	1/4" ALUMINUM PLATE	1	
48	MAIN PCB	1/4" ALUMINUM PLATE	1	
49	DISPLAY PCB	1/4" ALUMINUM PLATE	1	
50	LONG CABLE	1/4" ALUMINUM PLATE	1	
51	FRONT PANEL	1/4" ALUMINUM PLATE	1	
52	REAR PANEL	1/4" ALUMINUM PLATE	1	
53	TOP COVER	1/4" ALUMINUM PLATE	1	
54	BOTTOM COVER	1/4" ALUMINUM PLATE	1	
55	MAIN PCB	1/4" ALUMINUM PLATE	1	
56	DISPLAY PCB	1/4" ALUMINUM PLATE	1	
57	LONG CABLE	1/4" ALUMINUM PLATE	1	
58	FRONT PANEL	1/4" ALUMINUM PLATE	1	
59	REAR PANEL	1/4" ALUMINUM PLATE	1	
60	TOP COVER	1/4" ALUMINUM PLATE	1	
61	BOTTOM COVER	1/4" ALUMINUM PLATE	1	
62	MAIN PCB	1/4" ALUMINUM PLATE	1	
63	DISPLAY PCB	1/4" ALUMINUM PLATE	1	
64	LONG CABLE	1/4" ALUMINUM PLATE	1	
65	FRONT PANEL	1/4" ALUMINUM PLATE	1	
66	REAR PANEL	1/4" ALUMINUM PLATE	1	
67	TOP COVER	1/4" ALUMINUM PLATE	1	
68	BOTTOM COVER	1/4" ALUMINUM PLATE	1	
69	MAIN PCB	1/4" ALUMINUM PLATE	1	
70	DISPLAY PCB	1/4" ALUMINUM PLATE	1	
71	LONG CABLE	1/4" ALUMINUM PLATE	1	
72	FRONT PANEL	1/4" ALUMINUM PLATE	1	
73	REAR PANEL	1/4" ALUMINUM PLATE	1	
74	TOP COVER	1/4" ALUMINUM PLATE	1	
75	BOTTOM COVER	1/4" ALUMINUM PLATE	1	
76	MAIN PCB	1/4" ALUMINUM PLATE	1	
77	DISPLAY PCB	1/4" ALUMINUM PLATE	1	
78	LONG CABLE	1/4" ALUMINUM PLATE	1	
79	FRONT PANEL	1/4" ALUMINUM PLATE	1	
80	REAR PANEL	1/4" ALUMINUM PLATE	1	
81	TOP COVER	1/4" ALUMINUM PLATE	1	
82	BOTTOM COVER	1/4" ALUMINUM PLATE	1	
83	MAIN PCB	1/4" ALUMINUM PLATE	1	
84	DISPLAY PCB	1/4" ALUMINUM PLATE	1	
85	LONG CABLE	1/4" ALUMINUM PLATE	1	
86	FRONT PANEL	1/4" ALUMINUM PLATE	1	
87	REAR PANEL	1/4" ALUMINUM PLATE	1	
88	TOP COVER	1/4" ALUMINUM PLATE	1	
89	BOTTOM COVER	1/4" ALUMINUM PLATE	1	
90	MAIN PCB	1/4" ALUMINUM PLATE	1	
91	DISPLAY PCB	1/4" ALUMINUM PLATE	1	
92	LONG CABLE	1/4" ALUMINUM PLATE	1	
93	FRONT PANEL	1/4" ALUMINUM PLATE	1	
94	REAR PANEL	1/4" ALUMINUM PLATE	1	
95	TOP COVER	1/4" ALUMINUM PLATE	1	
96	BOTTOM COVER	1/4" ALUMINUM PLATE	1	
97	MAIN PCB	1/4" ALUMINUM PLATE	1	
98	DISPLAY PCB	1/4" ALUMINUM PLATE	1	
99	LONG CABLE	1/4" ALUMINUM PLATE	1	
100	FRONT PANEL	1/4" ALUMINUM PLATE	1	



NO	PARTS NAME	DESCRIPTION	QTY	REMARK
1	FRONT PANEL	EXPLODED VIEW		
2	REAR PANEL	EXPLODED VIEW		
3	ANTENNA	EXPLODED VIEW		
4	POWER CORD	EXPLODED VIEW		
5	SPEAKER WIRE	EXPLODED VIEW		
6	REMOTE CONTROL	EXPLODED VIEW		
7	MOUNTING SCREW	EXPLODED VIEW		
8	MOUNTING BRACKET	EXPLODED VIEW		
9	MOUNTING SCREW	EXPLODED VIEW		
10	MOUNTING SCREW	EXPLODED VIEW		
11	MOUNTING SCREW	EXPLODED VIEW		
12	MOUNTING SCREW	EXPLODED VIEW		
13	MOUNTING SCREW	EXPLODED VIEW		
14	MOUNTING SCREW	EXPLODED VIEW		
15	MOUNTING SCREW	EXPLODED VIEW		
16	MOUNTING SCREW	EXPLODED VIEW		
17	MOUNTING SCREW	EXPLODED VIEW		
18	MOUNTING SCREW	EXPLODED VIEW		
19	MOUNTING SCREW	EXPLODED VIEW		
20	MOUNTING SCREW	EXPLODED VIEW		
21	MOUNTING SCREW	EXPLODED VIEW		
22	MOUNTING SCREW	EXPLODED VIEW		
23	MOUNTING SCREW	EXPLODED VIEW		
24	MOUNTING SCREW	EXPLODED VIEW		
25	MOUNTING SCREW	EXPLODED VIEW		
26	MOUNTING SCREW	EXPLODED VIEW		
27	MOUNTING SCREW	EXPLODED VIEW		
28	MOUNTING SCREW	EXPLODED VIEW		
29	MOUNTING SCREW	EXPLODED VIEW		
30	MOUNTING SCREW	EXPLODED VIEW		
31	MOUNTING SCREW	EXPLODED VIEW		
32	MOUNTING SCREW	EXPLODED VIEW		
33	MOUNTING SCREW	EXPLODED VIEW		
34	MOUNTING SCREW	EXPLODED VIEW		
35	MOUNTING SCREW	EXPLODED VIEW		
36	MOUNTING SCREW	EXPLODED VIEW		
37	MOUNTING SCREW	EXPLODED VIEW		
38	MOUNTING SCREW	EXPLODED VIEW		



# C. FULL PARTS LIST

REV : 00

NO	MAT'L NEW CODE	PART NAME	SPECIFICATION	UNIT	Q'TY	LOCATION
ASS'Y MAIN PCB						
1	6100-PAC-0117	MAIN PCB	6114-A01-0117	EA	1	
2	1502-A00-0308-0	MACHINE SCREW (PH)	M3*8	EA	2	IC1, IC2
3	1540-A00-0300-0	NUT (HEX)	M3*0.5	EA	2	IC1, IC2
4	6220-100-7805-0	IC(REGULATOR)	LM7805	EA	1	IC2
5	6220-100-7812-0	IC(REGULATOR)	LM7812CT	EA	1	IC1
6	6280-1BR-0153-0	BRIDGE-DIODE	RB-153	EA	2	BD1, BD2
7	6281-1P0-4004-0	POWER-DIODE	1N4004	EA	1	D1
8	6282-1ZE-4736-0	ZENER-DIODE	5.1V/1W	EA	1	ZD1
9	6515-R0J-0203-0	RESISTOR 1/4W	CFR 20K(±5%)	EA	14	R5-R11
10	6515-R0J-0303-0	RESISTOR 1/4W	CFR 30K(±5%)	EA	2	R3, R4
11	6704-C50-0220-0	ELECTRIC CONDENSER	220 $\mu$ F/50V	EA	1	EC3
12	6704-C25-0470-0	ELECTRIC CONDENSER	470 $\mu$ F/25V	EA	1	EC1
13	6704-C16-1000-0	ELECTRIC CONDENSER	1000 $\mu$ F/16V(SG)	EA	1	EC2
14	6704-C16-0100-0	ELECTRIC CONDENSER	100 $\mu$ F/16V	EA	2	EC4, EC5
15	6710-CAP-0104-0	CERAMIC CONDENSER	0.1 $\mu$ F/25V(50V)	EA	5	C1, C2, C3, C4, C6
16	7002-Z00-0050-0	PIEZO BUZZER	20BP-4F(SL11-12FbP)	EA	1	BZ1
17	7801-CLW-0008-0	CONNECTOR (WAFER)	LH 0640-08	EA	1	CN2
18	7808-CGD-0005-0	CONNECTOR (WAFER)	1143-05(GOLD)	EA	1	CN1
19	7807-CFP-0011-0	FPC CONNECTOR	FC2254-11S	EA	1	CN4
20	7810-C00-8284-0	CONNECTOR	828400-40 (MALE)	EA	0.75	CN3
ASS'Y DISPLAY PCB						
21	6110-PAC-0077-0	DISPLAY PCB	6124-A01-0077	PCS	1	
22	2631-A00-0001-0	FIP CUSHION	EVA 30*20*2t	EA	3	
23	7810-C00-8288-0	CONNECTOR	828874-40(FEMALE)	EA	0.75	
24	7204-E00-0708	FIP & VFD	CU7DB	EA	3	
LOAD CELL ASS'Y				EA	1	

NO	MAT'L NEW CODE	PART NAME	SPECIFICATION	UNIT	Q'TY	LOCATION
ASS'Y ANALOG MODULE						
25	1050-A00-0008-0	SHIELD CASE (CAN)	50.2*37*18*1t	EA	1	
26	1510-A00-0236-0	TAPPING SCREW-1	2.3*5	EA	1	
27	1810-A00-0013-0	ANALOG PLATE	43*14.5(CAN)	EA	1	
28	6121-PMD-0100-0	ANALOG PCB	6144-A01-0100	EA	1	
29	6236-ISO-4011-0	IC(D-NDS-GATE)	UPD4011BG	EA	1	
30	6236-ISO-4066-0	IC(ANALOG SW)	UPD4066BG	EA	1	
31	6240-ISO-0177-0	IC(OP-AMP)	OP-177GS	EA	1	
32	6240-ISO-0040-0	IC(OP-AMP)	UPC4072G2	EA	2	
33	6281-100-1504-0	CHIP TRANSISTOR	KTA1504 SY	EA	3	
34	6284-ICP-0181-0	SWITCHING DIODE	KDS 181 (SMD)	EA	1	
35	6527-R00-0101-0	CHIP RESISTOR 1/10W	RR1220P-1010(100Ω)	EA	2	
36	6527-R00-0222-0	CHIP RESISTOR 1/10W	RR1220P-2220(2.2K)	EA	1	
37	6527-R00-0103-0	CHIP RESISTOR 1/10W	RR1220P-103(10K)	EA	6	
38	6527-R00-4882-0	CHIP RESISTOR 1/10W	RR1220P-48820(48.8K)	EA	2	
39	6527-R00-0104-0	CHIP RESISTOR 1/10W	RR1220P-1040(100K)	EA	4	
40	6540-RPR-11K5-0	PRECISION RESISTOR	FLAY 11K500B	EA	2	
41	6550-RM0-0400-0	NETWORK RESISTOR	2B-35-ME15(1K/10K)	EA	1	
42	6702-CAP-0106-0	CHIP TANTAL	10NCS 106 MB TER	EA	1	
43	6702-CAP-0685-0	CHIP TANTAL	16NCS 685 MB TER	EA	2	
44	6800-F00-0220-0	EMI FILTER	220PF(TDK)	EA	2	
45	6712-CHP-0104-0	CHIP CONDENSER	CL21F 104 MBNC	EA	10	
46	6720-CAP-0105-A	POLYESTER CONDENSER	1 F/63V J RATE BDX	EA	1	
47	6720-CAP-0474-0	POLYESTER CONDENSER	0.47 μF/63V J RATE BDX	EA	3	
48	6722-CAP-0474-A	P.P CONDENSER	0.47 μF/1600VC/5x/15mm	EA	1	
49	7810-C00-8284-0	CONNECTOR	828400-40(MALE)	EA	0.275	

NO	MAT'L NEW CODE	PART NAME	SPECIFICATION	UNIT	Q'TY	LOCATION
ASS'Y COUNTING MODULE						
50	6101-PCS-0400-0	COUNTING MODULE PCB	6144-A01-0400	EA	1	
51	6200-ISO-BB52-0	IC(CPU)	AT88C52-24QC	EA	1	
52	6224-ISO-1631-0	IC(FIP-DRIVER)	UPD1630GF-3LB	EA	1	
53	6210-ISO-6052-0	IC (RESET)	H6052 V1 (SDT223)	EA	1	
54	6210-ISO-2416-0	IC(BEP-RDM)	X24164S-C7000)	EA	1	
55	62B1-100-1504-0	CHIP TRANSISTOR	RKTA1504 SY	EA	1	
56	6527-R00-0101-0	CHIP RESISTOR 1/10W	RR1220P-1010(100Ω)	EA	5	
57	6527-R00-0102-0	CHIP RESISTOR 1/10W	RR1220P-1020(1K)	EA	1	
58	6527-R00-0222-0	CHIP RESISTOR 1/10W	RR1220P-2220(2/2K)	EA	6	
59	6527-R00-0103-0	CHIP RESISTOR 1/10W	RR1220P-1030(10K)	EA	1	
60	6712-CHP-0104-0	CHIP CONDENSER	CL21F 104 NBNC	EA	6	
61	7010-ZN0-1105-A	CRYSTAL	11.0592 MHz(ATS-4B/U)	EA	1	
62	7B10-C00-B2B4-0	CONNECTOR	B2B400-40(MALE)	EA	1, 2	
MECHANICAL PARTS						
1	1000-A00-0031-0	BACK COVER	231*171.1*0.8t	EA	1	
2	1030-A00-0010-0	TRANS COVER	144*80*26	EA	1	
3	1050-A00-0002-0	SELECT S/W COVER	30*13*0.5T	EA	1	
4	1000-A00-0001-0	DUST COVER	530*406*54	EA	1	
5	1000-A00-0033-0	SUPPORT	1000*50*580*1.0t	EA	1	
6	1000-A00-0035-0	HEAD GUIDE	241.5*117*32*2t	EA	1	
7	1110-A00-0001-0	PLATFORM	520*385*44	EA	1	
8	1110-A00-0004-0	BODY	DOLPHIN	EA	1	
9	1110-A00-0006-0	BRACKET	NEW DOLPHIN	EA	1	
10	15B0-A00-001B-0	GROUND SPRING	φ0.8*20*20, SUS	EA	1	
11	2010-A00-0005-0	FOOT	N10*45.5	EA	4	
12	2022-A00-0003-0	ASS'Y W/L GAUGE	18*21*14.5(BLACK)	EA	1	
13	2020-A00-0001-0	SUPPORT COVER	33*7.2*5B0	EA	1	
14	1B10-A00-0010-0	SPEC PLATE	DOLPHIN	EA	1	

NO	MAT'L NEW CODE	PART NAME	SPECIFICATION	UNIT	Q'TY	LOCATION
15	B304-A00-0013-0	DUST COVER CUSHION	440*470*2t	EA	1	
16	2001-A00-0055-0	STOP BOLT	M8*1.25*28.5(BROWN)	EA	2	
17	2014-A00-0001-0	HEXAGON BOLT CAP	φ14*φ18*12.2	EA	4	
18	2000-A00-0031-0	HEAD	235*175	EA	1	
19	2010-A00-0006-0	DISPLAY COVER	88.5*31.5*1t	EA	3	
20	2100-A00-0033-A	MEMBRANE S/H	AC TYPE	EA	1	
21	2200-A00-0081-A	KEY BOARD PAD	100AC	EA	1	
22	2600-A00-0028-0	BACK RUBBER RING	231.6*171	EA	1	
23	1505-NPN-0308-0	MACHINE SCREW (TH)	M3*8	EA	7	
24	1505-NSU-0410-0	MACHINE SCREW (TH)	M4*10-SUS	EA	2	
25	1507-A00-0307-0	MACHINE SCREW (CON)	M3*7	EA	2	
26	1540-A00-0300-0	NUT (HEX)	M3*0.5	EA	7	
27	1540-A00-0400-0	NUT (HEX)	M4*0.7	EA	2	
28	2600-A00-0001-0	WASIST BAND	PVC 15*16.3	EA	1	
29	1551-A00-0400-0	WASHER (SPR)	4	EA	2	
30	7630-S00-0020-A	FUSE HOLDER	FH-20(φ13)	EA	1	
31	7600-S0F-0112-0	ON/OFF SWITCH	SL112A	EA	1	
32	1502-A00-0408-0	MACHINE SCREW (PH)	M4*8	EA	1	
33	1521-A00-0825-0	HEXAGON BOLT (HA)	M8*25	EA	8	
34	1521-A00-0627-0	HEXAGON BOLT (HA)	M6*27.5	EA	3	
35	1532-A00-0803-0	WRENCH BOLT (ST)	M8*30	EA	4	
36	1540-A00-0800-0	NUT (HEX)	M8*1.25	EA	4	
37	7560-PAC-0001-0	POWER CORD	Y003-A/Z	EA	1	
38	1501-NSU-0510-0	MACHINE SCREW (FH)	M5*10 SUS	EA	3	
39	1521-A00-0612-0	HEXAGON BOLT (HA)	M6*12.5	EA	4	
40	1505-NSU-0412-0	MACHINE SCREW (TH)	M4*12 SUS	EA	4	
41	7702-G00-0012-0	PCB SUPPDRT	DABS-12R	EA	4	
42	7520-PAP-0220-0	POWER TRANS (4B)	220V/50-60Hz	EA	1	
43	1512-A00-0310-0	TAPPING SCREW (PH)-2	M3*10	EA	4	
44	7612-S00-0003-0	AC SOCKET CON.	3P	EA	1	

NO	MAT'L NEW CODE	PART NAME	SPECIFICATION	UNIT	Q'TY	LOCATION
C/T BOX ASS'Y						
45	B301-A00-0005-0	HEAD GUIDE POLY BAG	170*400*0.07t	BA	1	
46	7620-S00-0160-0	FUSE	S504-160mA/250V	BA	1	
47	7613-S00-0002-0	ADAPTOR PLUG	20 (AC)	BA	1	
48	7640-S00-0604-0	CORD STOPPER	SR-BN-4	BA	1	
49	7860-GND-1500-0	GROUND TER' ASS'Y	1500mm	BA	1	
50	B000-A00-0014-0	MANUAL	AC TYPE	BA	1	
51	B020-A00-0033-0	WARNING STICKER	AC CORD	BA	1	
52	B300-A00-0001-0	FUSE POLY BAG	50*60*0.05t	BA	1	
53	B303-A00-0004-0	HEAD POLY BAG	350*450*0.05t	BA	1	
54	B308-A00-0002-0	SBT POLY BAG	B50*B00*0.05t	BA	1	
55	B107-AD1-0004-0	C/T BOX	745*510*325	BA	1	
56	B107-AD2-0001-0	C/T BOX	760*525*345	BA	1	
57	B107-AP0-0002-0	PAD	740*505	BA	1	
58	B400-A00-0040-0	SILICAGEL	10g	BA	1	
59	B207-AS0-0001-0	STYRD POL BOX A	740*146*146	BA	1	
60	B207-AS0-0002-0	STYRD POL BOX B	740*146*146	BA	1	
61	B207-AS0-0003-0	STYRD POL BOX C	740*505*155	BA	1	
62	B301-A00-0003-0	MANUAL POLY BAG	170*250*0.05t	BA	1	

NO	MAT'L NEW CODE	PART NAME	SPECIFICATION	UNIT	Q'TY	LOCATION
< ELECTRICAL PARTS >						
ASS'Y MAIN PCB						
1	6100-PAC-011B-0	MAIN PCB	6100-PAC-011B-0	EA	1	
2	6220-100-7B05-0	IC(REGULATOR)	LM7805	EA	1	IC2
3	6220-100-7B12-0	IC(REGULATOR)	LM7812CT	EA	1	IC1
4	62B0-1BR-0153-0	BRIDGE-DIODE	RB-153	EA	2	BD1, BD2
5	62B1-1P0-4004-0	POWER-DIODE	1N4004	EA	1	D1
6	62B2-1ZE-4736-0	ZENER-DIODE	6.8V/1W	EA	1	ZD1
7	6515-R0J-0203-0	RESISTOR 1/4W	CFR 20K(±5%)	EA	14	R3-R8
8	6515-R0J-0303-0	RESISTOR 1/4W	CFR 30K(±5%)	EA	2	R
9	6704-C50-0220-0	ELECTRIC CONDENSER	220 $\mu$ F/50V	EA	1	EC5
10	6704-C25-0470-0	ELECTRIC CONDENSER	470 $\mu$ F/25V	EA	1	EC1
11	6704-C16-1000-0	ELECTRIC CONDENSER	1000 $\mu$ F/16V(SG)	EA	1	EC2
12	6704-C16-0100-0	ELECTRIC CONDENSER	100 $\mu$ F/16V	EA	2	EC3, EC4
13	6710-CAP-0104-0	CERAMIC CONDENSER	0.1 $\mu$ F/25V(50V)	EA	5	C1, C2, C3, C4, C5
14	7002-Z00-0050-0	PIEZO BUZZER	20BP-4F(SL11-12F&P)	EA	1	BZ1
15	7B01-CLW-0008-0	CONNECTOR (WAFER)	LW 0640-08	EA	1	CN1
16	7B08-CGD-0005-0	CONNECTOR (WAFER)	1143-05(GOLD)	EA	1	CN2
17	7B07-CFP-0011-0	FPC CONNECTOR	FCZ254-11S	EA	1	CN
18	7204-B00-0708-0	FIP & VFD	CV7DB	EA	3	
LOAD CELL ASS'Y				EA	1	

NO	MAT'L NEW CODE	PART NAME	SPECIFICATION	UNIT	Q'TY	LOCATION
ASS'Y ANALOG MODULE						
19	6121-PMD-0100-0	ANALOG PCB	6121-PMD-0100-0	EA	1	
20	6236-ISO-4011-0	IC(D-NDS-GATE)	UPD4011BG	EA	1	
21	6236-ISO-4066-0	IC(ANALOG SW)	UPD4066BG	EA	1	
22	6240-ISO-0177-0	IC(OP-AMP)	OP-177GS	EA	1	
23	6240-ISO-0040-0	IC(OP-AMP)	UPC4072G2	EA	2	
24	6281-100-1504-0	CHIP TRANSISTOR	MTA1504 SY	EA	3	
25	6284-ICP-0181-0	SWITCHING DIODE	KDS 181 (SMD)	EA	1	
26	6527-R00-0101-0	CHIP RESISTOR 1/10W	RR1220P-1010(100Ω)	EA	2	
27	6527-R00-0222-0	CHIP RESISTOR 1/10W	RR1220P-2220(2.2K)	EA	1	
28	6527-R00-0103-0	CHIP RESISTOR 1/10W	RR1220P-103(10K)	EA	6	
29	6527-R00-4882-0	CHIP RESISTOR 1/10W	RR1220P-4882(48.8K)	EA	2	
30	6527-R00-0104-0	CHIP RESISTOR 1/10W	RR1220P-1040(100K)	EA	4	
31	6540-RPR-11K5-0	PRECISION RESISTOR	FLAY 11K500B	EA	2	
32	6550-RM0-0400-0	NETWORK RESISTOR	2B-35-ME15(1K/10K)	EA	1	
33	6702-CAP-0106-0	CHIP TANTAL	10NCS 106 MB TER	EA	1	
34	6702-CAP-0685-0	CHIP TANTAL	16NCS 685 MB TER	EA	2	
35	6800-F00-0220-0	EMI FILTER	220PF(TDK)	EA	2	
36	6712-CHP-0104-0	CHIP CONDENSER	CL21F 104 MBNC	EA	10	
37	6720-CAP-0105-A	POLYESTER CONDENSER	1 F/63V J RATE BDX	EA	1	
38	6720-CAP-0474-0	POLYESTER CONDENSER	0.47 μF/63V J RATE BDX	EA	3	
39	6722-CAP-0474-A	P.P CONDENSER	0.47 μF/160VDC/5% /15mm	EA	1	
40	7810-C00-8284-0	CONNECTOR	828400-40(MALE)	EA	0.275	

NO	MAT'L NEW CODE	PART NAME	SPECIFICATION	UNIT	Q'TY	LOCATION
ASS'Y COUNTING MODULE						
41	6101-PCS-0400-0	COUNTING MODULE PCB	6144-A01-0400	BA	1	
42	6200-ISO-BB52-0	IC(CPU)	AT88C52-24QC	BA	1	
43	6224-ISO-1631-0	IC(FIP-DRIVER)	UPD1630GF-3LB	BA	1	
44	6210-ISO-6052-0	IC (RESET)	H6052 V1 (SDT223)	BA	1	
45	6210-ISO-2416-0	IC(BEP-RDM)	X24164S-C7000)	BA	1	
46	62B1-100-1504-0	CHIP TRANSISTOR	RKTA1504 SY	BA	1	
47	6527-R00-0101-0	CHIP RESISTOR 1/10W	RR1220P-1010(100Ω)	BA	5	
48	6527-R00-0102-0	CHIP RESISTOR 1/10W	RR1220P-1020(1K)	BA	1	
49	6527-R00-0222-0	CHIP RESISTOR 1/10W	RR1220P-2220(2/2K)	BA	6	
50	6527-R00-0103-0	CHIP RESISTOR 1/10W	RR1220P-1030(10K)	BA	1	
51	6712-CHP-0104-0	CHIP CONDENSER	CL21F 104 NBNC	BA	6	
52	7010-ZN0-1105-A	CRYSTAL	11.0592 MHz(ATS-4B/U)	BA	1	
53	7B10-C00-B2B4-0	CONNECTOR	B2B400-40(MALE)	BA	1, 2	
CIRCUIT BODY ASS'Y						
54	7630-S00-0020-A	FUSE HOLDER	FH-20 (φ13)	BA	1	
55	7600-S0F-0112-0	ON/OFF SWITCH	SL112A	BA	1	
56	7560-PAC-0001-0	POWER CORD	Y003-A/Z	BA	1	
57	7702-G00-0012-0	PCB SUPPORT	DABS-12R	BA	4	
58	7520-PAP-0220-0	POWER TRANS(4B)	220V/50-60Hz	BA	1	
59	7612-S00-0003-0	AC SOCKET CON.	3P			
CIRCUIT C/T BOX ASS'Y						
60	7613-S00-0002-0	ADAPTOR PLUG	20(AC)	BA	1	
61	7640-S00-0604-0	CORD STOPPER	SR-6M-4	BA	1	
62	7B60-GND-1500-0	GROUND TER' ASS'Y	1500mm	BA	1	



NO	MAT'L NEW CODE	PART NAME	SPECIFICATION	UNIT	Q'TY	LOCATION
< MECHANICAL PARTS >						
ASS'Y BODY						
1	2010-A00-0005-0	FOOT	M10*45.5	EA	4	
2	2022-A00-0003-0	ASS'Y W/L GAUGE	18*21*14.5(BLACK)	EA	1	
3	1000-A00-0001-0	DUST COVER	530*406*54	EA	1	
4	1110-A00-0001-0	PLATFROM	520*385*44	EA	1	
5	1110-A00-0004-0	BODY	DOLPHIN	EA	1	
6	1580-A00-0018-0	GROUND SPRING	0.8*20*20, SUS	EA	1	
7	B304-A00-0013-0	DUST COVER CUSHION	440*470*2t	EA	1	
8	2600-A00-0001-0	WAIST BAND	PVC 15*16.3	EA	1	
9	1502-A00-0408-0	MACHINE SCREW (PH)	M4*8	EA	1	
10	1521-A00-0825-0	HEXAGON BOLT (HA)	M8*25	EA	8	
11	1532-A00-0830-A	WRENCH BOLT (ST)	M8*30-SUS, NUT	EA	4	
ASS'Y SUPPORT						
12	1524-NS0-0627-0	HEXAGON BOLT (FLH)	M6*27-SUS	EA	3	
13	1110-A00-0006-0	BRACKET	NEW DOLPHIN	EA	1	
14	1524-NSU-0608-0	HEXAGON BOLT (FLH)	M6*8.5	EA	4	
15	2014-A00-0001-0	HEXAGON BOLT CAP	14*18*12.2	EA	4	
16	1000-A00-0033-0	SUPPORT	1000*50*580*1.0t	EA	1	
17	2020-A00-0001-0	SUPPORT COVER	33*7.2*580	EA	1	
18	1810-A00-0010-0	SPEC PLATE	DOLPHIN	EA	1	
ASS'Y HEAD						
19	1000-A00-0035-0	HEAD GUIDE	241.5*117*32*2t	EA	1	
20	1501-NSU-0510-0	MACHINE SCREW (FH)	M5*10 SUS	EA	3	
21	2001-A00-0055-0	STOP BOLT	M8*1.25*28.5(BROWN)	EA	2	
22	2000-A00-0031-0	HEAD	235*175	EA	1	
23	2010-A00-0006-0	DISPLAY COVER	88.5*31.5*1t	EA	3	
24	2100-A00-0033-0	MEMBRANE S/H	AC TYPE	EA	1	
25	2200-A00-0081-0	KEY BOARD PAD	100AC	EA	1	
26	2600-A00-0028-0	BACK RUBBER RING	231.6*171	EA	1	
27	1505-NPM-0308-0	MACHINE SCREW (TH)	M3*8	EA	7	
28	1505-NSU-0410-0	MACHINE SCREW (TH)	M4*10-SUS	EA	2	
29	1507-A00-0307-0	MACHINE SCREW (CON)	M3*7	EA	2	
30	1540-A00-0300-0	NUT (HEX)	M3*0.5	EA	7	
31	1540-A00-0400-0	NUT (HEX)	M4*0.7	EA	2	
32	1551-A00-0400-0	WASHER (SPR)	4	EA	2	
33	1505-NSU-0412-0	MACHINE SCREW (TH)	M4*12 SUS	EA	4	
34	1512-A00-0310-0	TAPPING SCREW (PH)-2	M3*10	EA	4	
35	1000-A00-0031-A	BACK COVER	231*171.1*0.8t	EA	1	
36	1030-A00-0010-0	TRANS COVER	144*80*26	EA	1	
37	1050-A00-0002-0	SELECT S/H COVER	30*13*0.5T	EA	1	

NO	MAT'L NEW CODE	PART NAME	SPECIFICATION	UNIT	Q'TY	LOCATION
ASS'Y MAIN PCB						
1	1502-A00-0308-0	MACHINE SCREW (PH)	M3*8	EA	2	IC1, IC2
2	1540-A00-0300-0	NUT (HEX)	M3*0.5	EA	2	IC1, IC2
3	1030-A00-0048-0	CAL S/W BRACKET	AP	EA	1	
ASS'Y ANALOG PCB						
1	1050-A00-0008-0	SHIELD CASE (CAN)	AL 60.2*37*18*1t	EA	1	
2	1510-A00-0236-0	TAPPING SCREW (PH)-1	2.3*5	EA	1	
3	1810-A00-0013-0	ANALOG PLATE	43*14.5(CAN)	EA	1	
ASS'Y C/T BOX						
1	B301-A00-0005-0	HEAD GUIDE POLY BAG	170*400*0.07t	EA	1	
2	B000-A00-0014-0	MANUAL	AC TYPE	EA	1	
3	B020-A00-0033-0	WARNING STICKER	AC CORD	EA	1	
4	B300-A00-0001-0	FUSE POLY BAG	50*50*0.05t	EA	1	
5	B303-A00-0004-0	HEAD POLY BAG	350*450*0.05t	EA	1	
6	B308-A00-0002-0	SET POLY BAG	850*800*0.05t	EA	1	
7	B107-AD1-0004-0	C/T BOX	745*510*325	EA	1	
8	B107-AD2-0001-0	C/T BOX	760*525*345	EA	1	
9	B107-AP0-0002-0	PAD	740*505	EA	1	
10	B400-A00-0040-0	SILICAGEL	10g	EA	1	
11	B207-AS0-0001-0	STYROPOL BOX A	740*146*146	EA	1	
12	B207-AS0-0002-0	STYROPOL BOX B	740*146*146	EA	1	
13	B207-AS0-0003-0	STYROPOL BOX C	740*505*155	EA	1	
14	B301-A00-0003-0	MANUAL POLY BAG	170*250*0.05t	EA	1	

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## APPENDIX

### DEVICE SPECIFICATION

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**CPU** ..... **80C52/80C32**

**MOS INTEGRATED CIRCUIT** .....  **$\mu$ PD16310**

**RESET I. C** ..... **H6052**

**EEPROM** ..... **AT24C164**